

ADA Design Issues

Intersections and Bus Stops

FDOT Design Training Expo 2012 - Orlando, FL



Dean Perkins, RA - ADA Coordinator
Florida Department of Transportation
Office of Design, Production Support



Based on:
Design Pedestrian Facilities for Accessibility
U. S. Department of Transportation, 2010



Intersections & Bus Stops

- *How to ensure **Pedestrian and Transit Facilities** within our public rights of way are "accessible to and useable by" all pedestrians, including people with disabilities.*
- In this Session, we will review:
 - Overview of Standards & Guidelines
 - Introduction to 'Pedestrian Access Routes'
 - Crossings, Curb Ramps & Detectable Warnings
 - Bus Stops, Benches & Shelters, etc.





This is who we are working for

2012 Design Training Expo



And, also...

2012 Design Training Expo

Standards & Guidelines

- ADA Standards for Accessible Design
 - 1991/1994 & 2010
- ADA Standards for Transportation Facilities
 - 2006
 - Section designations: ###.#
- Guidelines for Accessible Public Rights of Way (PROWAG)
 - Section designations: R####.# (leading "R")



Public Rights of Way

- Access Board published proposed guidelines for public rights of way on July 26, 2011
- Proposal addresses sidewalks, curb cuts, street crossings, on-street parking, other elements not on a "site"
 - **NPRM - public comments - 11/23/11**
 - www.access-board.gov/prowac/nprm.htm
 - **Adoption in late 2012 - early 2013?**
- **This presentation is based on PROWAG criteria**



Intersection Issues

- Pedestrian approach
- Pedestrian signals
- Curb ramps, etc.
- Detectable warnings
- Crossings
- Others:
 - Above-grade objects
 - Drainage inlets



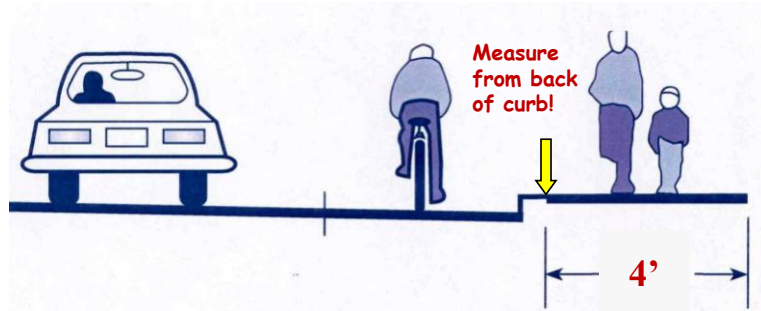
Pedestrian Access Route (PAR) R204 & R301

- PROW equivalent to "accessible route" for sites & facilities
- 48" clear width min. - no reduction in width
 - Exceptions for "existing physical constraints"
 - ROW limitations, adjacent facilities, underground structures, etc.
- 2% max. cross-slope
- May follow general grade of roadway
- "Supported slopes" must meet R407
 - Bridge approaches, bridge structures, etc.
 - Ramps: slopes, landings, handrails, etc.



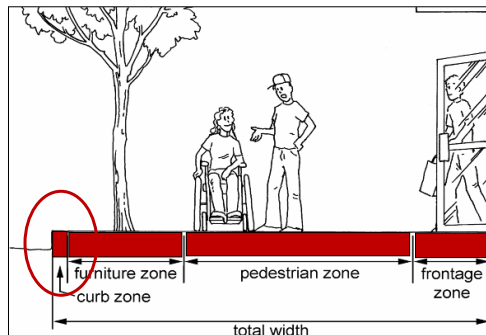
Pedestrian Access Route (PAR)

- R301.3.1 Continuous Width
 - The minimum continuous and unobstructed clear width of a pedestrian access route shall be 4 ft, exclusive of the width of the curb



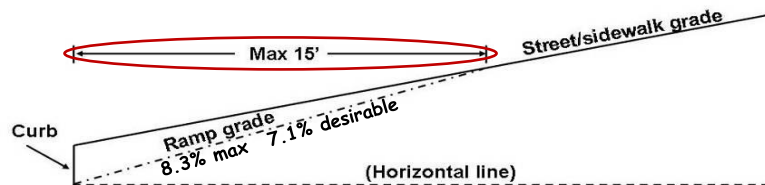
The Sidewalk 'Zone' System

- Curb Zone
- Furniture Zone
- Pedestrian Zone (must meet PAR criteria)
- Frontage Zone



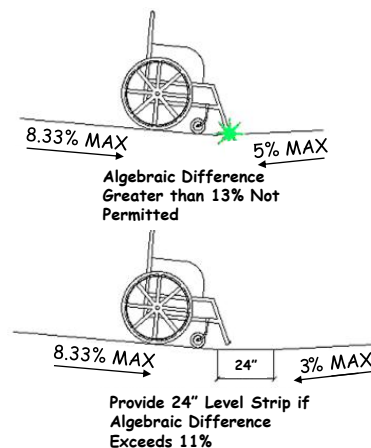
Curb Ramp Grade R303.2

- Least slope possible is preferred
- Maximum grade - 8.3% (1:12)
- Recommended maximum grade to allow for construction tolerance - 7.1% (1:14)
- However... When "chasing grade," ramp length need not exceed 15', but slope must be uniform



Change of Grade (Counterslope) R303.3.5

- PROWAG allows 8.3% ramp and 5% grade at the adjacent street = 13.3%
- Recommendation:
 - 11% maximum
 - Provide 2' level area if greater than 11%



See notes in Index 304

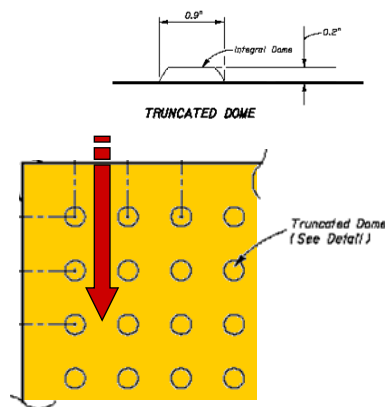
Detectable Warnings R221 & R304

- “Truncated Domes” in aligned pattern
- Required where curb ramps, blended transitions or landings provide a flush pedestrian connection to the street
- Not required at most driveways
- Recommended at commercial driveways with traffic control devices or which operate like public streets
 - Signals, etc.



Detectable Warnings

- Truncated Domes
 - Aligned pattern
- Color/contrast with surrounding materials
 - Light-on-dark
 - Dark-on-light
 - Black, Brown,
 - Brick-red, Green,
 - Safety yellow, etc.
 - *Not Blue!*

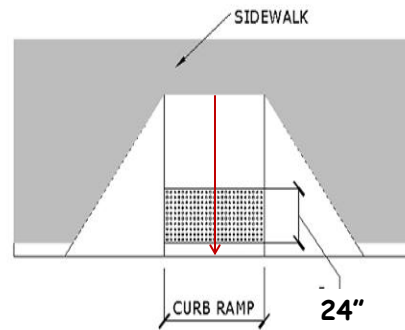


Perpendicular Curb Ramps

R305.2.1



Place DWs at back of curb
or at grade break

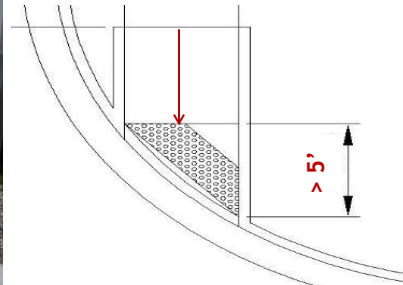


2012 Design Training Expo

Directional/Linear Curb Ramps

R305.2.1

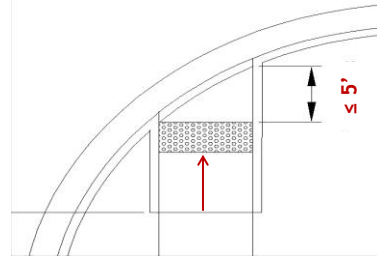
- Greater than 5 feet setback to bottom of curb ramp . . .
 - Place DW on bottom landing if level landing is more than 5' deep at any point



2012 Design Training Expo

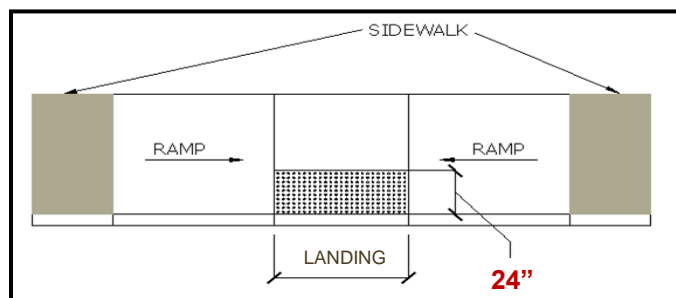
Directional/Linear Curb Ramps R305.2.1

- Equal to or less than 5 feet setback to bottom of curb ramp . . .
 - Place DW at grade break if level landing at bottom of ramp is 5' deep or less



2012
Design Training
Expo

Parallel Curb Ramps R305.2.2



2012
Design Training
Expo

[illegible]

Pedestrian Crossings R306



- Slope of crossing = cross-slope of roadway
- Cross-slope = running-slope of roadway
- Cross Slope:
 - 'STOP'-controlled: 2% max.
 - Non - 'STOP'-controlled: 5% max.
 - i.e., 'YIELD', signal or no control
 - Mid-block: match grade of roadway



2012 Design Training Expo

Accessible Pedestrian Signals (APS) R209 & R307 & MUTCD 4E.09

- Provide pedestrian signal information in usable formats, both audible and vibrotactile
- Information in redundant format benefits all pedestrians
- Increase the efficiency of pedestrian timing (research shows reduction in vehicle delay)

2012 Design Training Expo

Accessible Pedestrian Signals

- Key features:

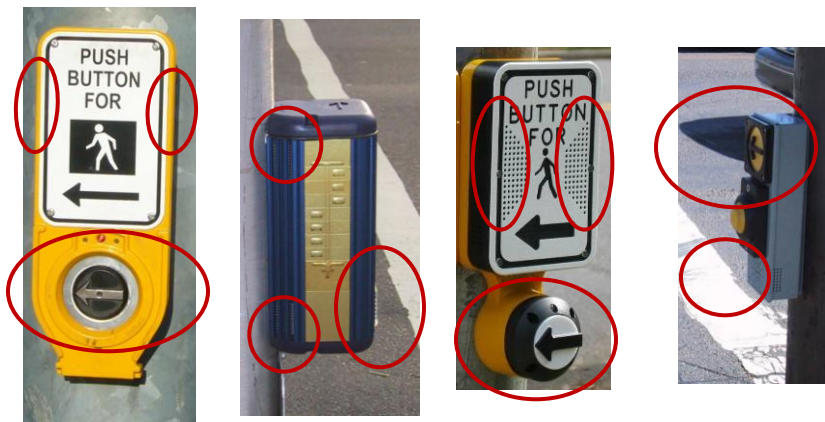
- Speakers at the pushbutton
- Pushbutton locator tone
- Tactile arrow
- Audible and vibrotactile walk indications
- Automatic volume adjustment



ADA & LAP Projects

June 2012

Speakers



Tactile Arrows

Tactile Arrow

- Aligned with the direction of travel on crosswalk
- May be on pushbutton, or on part of device, or on sign above pushbutton

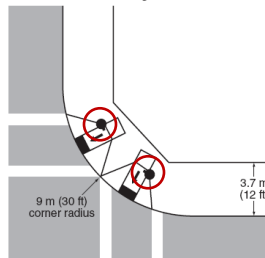
PROWAG R306.4.1 &
MUTCD 4E.11 & 4E.12



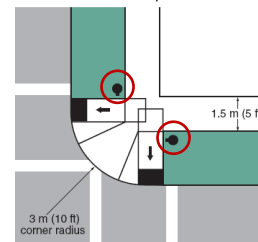
2012 Design Training Expo

APS Pushbutton Locations MUTCD 4E.10

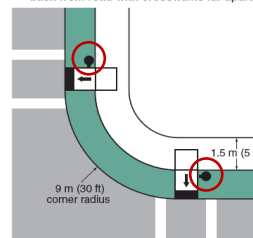
E - Perpendicular ramps with crosswalks close together



I - Perpendicular ramps with sidewalk set back from road with continuous sidewalk between ramps



F - Perpendicular ramps with sidewalk set back from road with crosswalks far apart



- NOTE: It must be clear which button controls which crossing. (per MUTCD).
- NOTE: If APSs cannot be placed at least 10' apart, they must 'speak' to you.

2012 Design Training Expo

APS Locations



Good placement of APSs



Not-so-good placement

Bus Stop Issues

- Approach and accessibility to bus stop
- Accessibility at bus stop
- Boarding & alighting area
- Bus benches
- Bus shelters
- Curb & gutter vs. flush shoulders

Bus Stops

R308

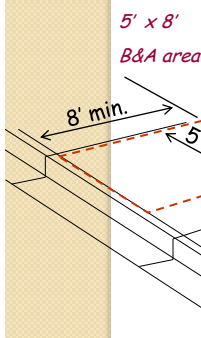


- When siting a new bus stop...
 - Must be on PAR
 - 48" min. (PROWAG)
 - 60" recommended
 - This may be sidewalk or paved shoulder
 - Must have accessible approach to bus stop
 - 48" min. width - 60" recommended
 - Leads to / part of boarding & alighting area
 - Meets running slope/cross slope criteria
 - Firm, stable & slip-resistant
 - Must consider potential construction of boarding and alighting area & other features

2012 Design Training Expo

Bus Stops

- **If provided** - Boarding & Alighting area:



- Place for bus lift/ramp to deploy
- "Firm, stable and slip-resistant" surface (ADAS & PROWAG)
- "Firm and stable" surface (ADASTF)
- Must connect to streets, sidewalks, etc.
 - Sidewalk, curb ramps, etc.
- 5' min. width - parallel to roadway
 - Match roadway grade
- 8' min. depth - perpendicular to roadway
 - Max. 2%

NOTE: If low-floor, ramp-equipped bus is used, the B&A area should be raised (curb height).

2012 Design Training Expo

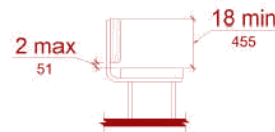
Bus Stops

- **If provided** – bus bench:
 - Must be on PAR
 - Must not block PAR
 - 48" min. sidewalk clearance – 60" recommended
 - Must have maneuvering space adjacent to bench
 - 30" x 48" min.; firm, stable & slip-resistant surface
 - Allow shoulder-to-shoulder seating for companion
 - Allow transfer to bench (if desired)
 - Bench size criteria
 - *See next slide*

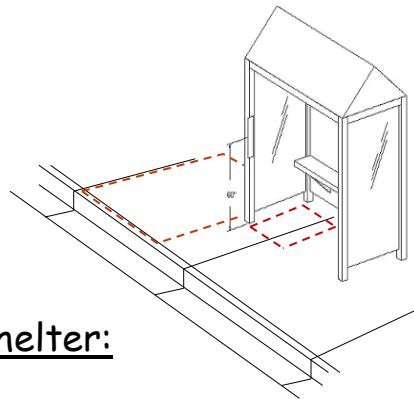


Bus Stops – Bench Criteria

- There are differences – must meet both:
- **ADA Requirements:**
 - S.903: (for **Seat**)
 - Seat length: 42" min.
 - Seat height: 17"-19"
 - Seat depth: 20" min. & 24" max.
 - Seat back: 2"-18" above seat
 - If no back, bench must be near a wall
 - Seat back/wall: 2½" max. from seat
 - Armrests recommended
- **Florida Administrative Code (FAC) Reqts.:**
 - S.14-20.0032 FAC: (for **Bench**)
 - Bench length: 74" max.
 - Bench depth: 28" max.
 - Bench height: 44" max.



Bus Stops



- **If provided - bus shelter:**
 - Must be on PAR
 - Must not block PAR
 - 48" min. clearance - 60" recommended
 - 30" x 48" min. clear floor area within shelter
 - 48" min. approach to clear floor area
 - 48" min. approach to boarding & alighting area



Rural bus stops

- **Primary Issues:**
 - Flush shoulder - No curb/gutter
 - Shoulder is sloped away from the roadway
 - Most 'kneeling' buses are designed to deploy front ramps onto 6" curbs
 - 1:6 slope allowed on ramp deployed on curb (ADAAGBV*)
 - Use on flush shoulder causes ramp to be too steep for safe use.

* ADAAGBV = ADA Accessibility Guidelines for Buses and Vans



Rural bus stops



2012 Design Training Expo

Bus Stops

- Good!



2012 Design Training Expo

Bus Stops

- Not Good!



2012 Design Training Expo

DOJ Resources

- DOJ enforces federal requirements for most sites and facilities
- Tool Kit for State and Local Gov'ts
www.ada.gov/pcatoolkit/toolkitmain.htm
- See Chapter 6
 - Chapter 6, Curb Ramps and Pedestrian Crossings
 - Check list (addendum)
 - Survey instructions (appendix)
 - Survey Form (appendix)

2012 Design Training Expo

38

FHWA Resources

- FHWA implements and enforces the federal requirements for public right-of-way
- Resources on FHWA web site
 - Questions and Answers About ADA/ Section 504,
www.fhwa.dot.gov/civilrights/programs/ada_section504qa.htm



39

FDOT Resources

- FDOT implements state and federal requirements for accessibility for our building facilities and for pedestrian facilities within state public rights of way
- Resources on FDOT Website
 - Designer tools, training, links, etc.
 - www.dot.state.fl.us/projectmanagementoffice/ADA/



Contact US

- **State**

- FDOT ADA Coordinator
- FDOT District ADA Coordinators
- City/County ADA Coordinators

- **Federal**

- U.S. Access Board
- U.S. Department of Transportation
- U.S. Department of Justice



ADA Design Issues



FDOT Design Training Expo 2012 - Orlando, FL

*Dean Perkins, RA - ADA Coordinator
Florida Department of Transportation
Office of Design, Production Support*



Thank You!

Merci!

Todah Rabbah

Arigato!

Dhanya Vaad!

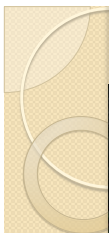
Xie Xie!

Gracias!

Shokran!

Danke!

LIVE LONG AND PROSPER!



What WERE they thinking!?!